Tyler Wong

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RELEVANT EXPERIENCE

Technical Assistant Director - Website Co-Lead

ASUCD Picnic Day, UC Davis *Jan. 2025 - May 2025*

- Managed and implemented ASUCD Picnic Day website—featuring interactive maps, event schedules, and vendor listings—boosting web traffic by **418%** and 28,000+ new users
- Led development of **AI chatbot** to support **75,000+** attendees with real-time queries and event logistics

Undergraduate Lab Assistant - Department of Electrical & Computer Engineering | UC Davis

Dept. of Electrical & Computer Engineering, UC Davis *March 2025 - June 2025*

- Mentored **20-25 students** in microcontroller debugging, circuit design, and embedded firmware using **oscilloscopes,** TI Launchpads, and Code Composer Studio
- Reinforced hands-on expertise in soldering, **LTspice** simulations, signal analysis for analog/digital systems, and hardware validation

PROJECTS

Autonomous Vehicle Design

- Developed a high-speed autonomous car on the Traxxas Rustler 2WD platform.
- Designed, assembled, and tested a DFM-compliant 2-layer **motor control PCBA** using **Altium**, interfaced with an OpenMV Cam processor and a custom 3D-printed 30° angled camera mount.
- Implemented **image-guided lane tracking** with PID control, achieving **top 3 placement** and outperforming course average by 12 seconds.

UltraCam - 3D Imaging IoT Device

- Engineered a handheld imaging system capturing ultrasonic and accelerometer data to generate top-down **3D spatial depth maps** with real-time sampling for IoT data visualization.
- Displayed output via OLED and uploaded 3D data to AWS S3 using **SPI/I2C**-based modular drivers.

IR Remote Emailing System

- Created an embedded messaging system using TI CC3200 and AWS IoT & SNS.
- Built a multi-layered IR decoder architecture with **UART/SPI** communication and OLED feedback.
- Enabled email delivery of typed messages via TLS-secured HTTP POST requests, demonstrating real-time system control, RESTful API communication, and modular embedded programming.

Sonic Navigation Robot

- Designed a sound-activated navigation robot with analog filter chain and TI-RSLK platform for real-time directional control.
- Improved **ADC signal accuracy by 65%** through amplifier tuning and analog signal conditioning.
- Led end-to-end system-level design from microphone capture through PWM actuation, validated with oscilloscope traces and LTspice waveform simulations.

TECHNICAL SKILLS

- Languages: C, C++, Python, Matlab, Verilog
- Hardware/Tools: Altium Designer, LTspice, oscilloscope, SPI/UART/I2C, PCB design & validation
- Microcontrollers Platforms: Arduino, TI Launchpad, DE10-Lite FPGA, Raspberry Pi
- Cloud/IoT: AWS IoT, Lambda, S3, event-driven architecture, REST APIs
- Simulation & Debugging Tools: Scopy, Questa, ModelSim, Code Composer Studio
- Software & Productivity Tools: Microsoft 365, Xcode, Linux, Github, Solidworks

EDUCATION

University of California Davis **June 2025**

B.S. Electrical Engineering | Minor: Technology Management

- Dean's Honor List 2022